Remarks

Claims 1-22 were pending in the application. Claims 1-22 were rejected. No claims were merely objected to and no claims were allowed. By the foregoing amendment, claims 12 and 17 are canceled, claims 10, 15, 16, and 20 are amended, and claims 23-24 are added. No new matter is presented.

Claim Objections

Claim 9 was objected to under 37 C.F.R. 1.75(c). Claim 9 recites the nozzle in combination with the machining tool and outlet streams discharged by the nozzle. Applicants were encouraged to amend claim 9 "to recite the nozzle of claim 1 further comprising..." However, this would not be technically proper as the machine tool and outlet streams are not, technically, part of the nozzle. Accordingly, the claim is believed in proper dependent form and the rejection is traversed. Applicants are open to suggestions for alternative language such as identifying "A combination of the nozzle of claim 1 and said machine tool and a plurality of coolant..."

Claim Rejections-35 U.S.C. 112

Claims 16-19 were rejected under 35 U.S.C. 112(2). Applicants respectfully traverse the rejection. It was queried "how the embodiments for one coolant outlet discharges a plurality of streams?" Due to surface tension of the coolant, it may be possible for a single outlet to simultaneously emit multiple streams (e.g., if the outlet has a complex shape).

Claim Rejections-35 U.S.C. 102

Claims 10-15 were rejected under 35 U.S.C. 102(e) as being anticipated by DE 202 16 396. Applicants respectfully traverse the rejection.

The two apparent groups of outlets 26' and 26" are at different radial positions as shown below. Accordingly, DE '396 cannot anticipate claim 12. The relevant portion of claim 12 has been incorporated into claim 10.

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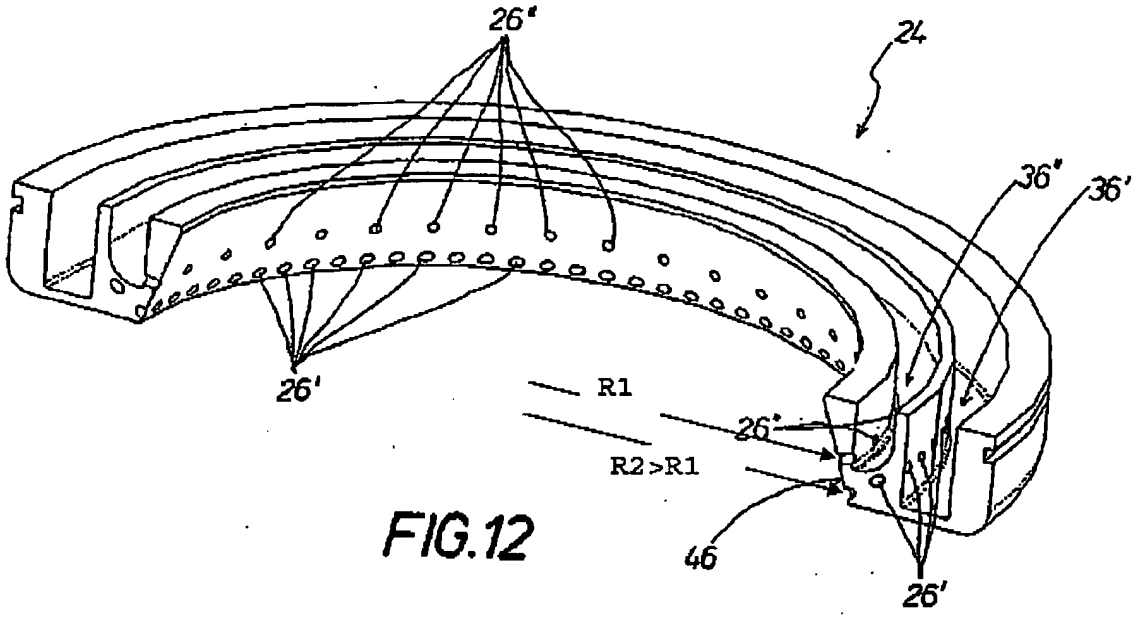

FIG.12

Claims 10-12, 14-16, 20 and 21 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,471,573 of Reitmeyer. Applicants respectfully traverse the rejection.

Independent claim 10 identified a "circumferential spacing between adjacent ones of the outlets [as] being no more than 72°..." Independent claim 20 identified a "circumferential spacing between each of the outlets and an associated two adjacent ones of the outlets of no more than 72°..." The Office action identified Reitmeyer elements 27, 29a, and 29b as the outlets. Clearly, the circumferential spacing between the single central outlet 27 and each of its two adjacent outlets 29a and 29b is within the claimed 72°. However, this is not the case for the outlets 29a and 29b. Although each is within 72° of one of its adjacent outlets, there is a gap in excess of 270° between it and the other outlet (see below). Even with a very broad claim interpretation, claim 20 specifically identifies the plural "each of the outlets" as having the claimed relationship to "an associated two adjacent ones..." The plural is not anticipated by the singular. Claim 10 has been amended to further clarify this. Such amendment does not raise a new issue as the issue has already been present in claim 20.

Claims 21 and 22 further define the bit as a quill and identify properties thereof

(antecedent basis in the second and third sentences of the Detailed Description). The prior art fails to suggest the nozzle in combination with such a quill. Reitmeyer, further, does not disclose the material of claims 14 and 15 or the total redundant circumferential coverage of claims 15 and 16 (as amended) because clearly there is a large sector not addressed by any of the Reitmeyer sprays. This is not a new issue as the elements were previously found in claims 15 and 17.

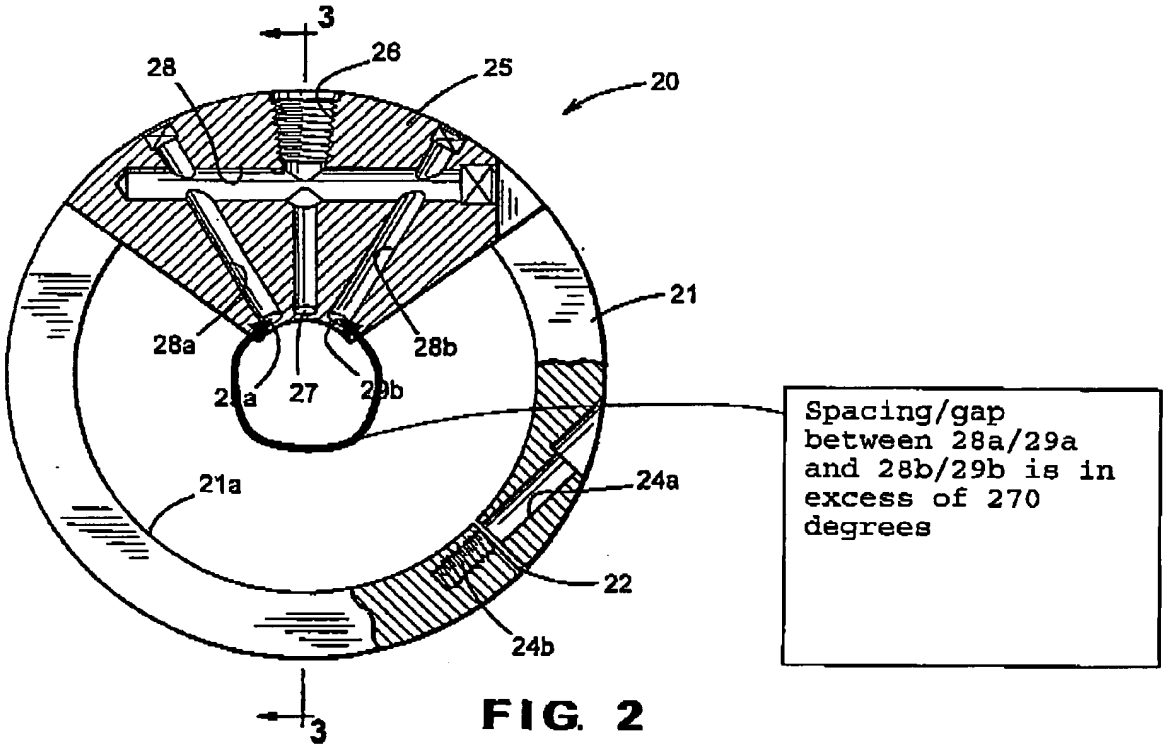

FIG. 2

Claims Rejections-35 U.S.C. 103

Claims 1-22 were rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent 5,332,341 of Arai et al. in view of U.S. Patent 4,252,768 of Perkins et al. Applicants respectfully traverse the rejection.

Arai et al. discloses a pressure foot for a printed circuit board drilling apparatus discussed in the prior amendment. Perkins et al. discloses a very specific construction of a sandblasting nozzle. The Perkins et al. nozzle has a core and a separate casing. The core material is a ceramic composite having a composition selected for properties including high temperature oxidation

resistance, high strength, high abrasion resistance, high resistance to thermal shock, and the like. Col. 3, lines 26-63. The Perkins et al. delivery of a high temperature sandblasting medium is substantially different from both the pressure foot of Arai et al. on the one hand and the present coolant nozzle on the other hand. There has been no properly cited motivation as to why one of ordinary skill in the art would so modify the Arai et al. pressure foot, let alone attempt its use as a coolant nozzle.

Claim 1 has been amended to delete reference to the material as ceramic while retaining the sintering (see, also, new claim 23). Other materials (e.g., glass-filled nylon or other polymer) are known to be formable by selective laser sintering (SLS) as is known, for example, from United States Patent 5,733,497 of McAlea et al. and entitled "Selective Laser Sintering with Composite Plastic Material". Yet further materials may be developed.

Claim 2 further identifies the body as being a single unitary piece. This, of course, does not preclude the presence of other components such as fittings, fasteners, and the like. Perkins et al. fails to disclose this, let alone suggest this as part of a combination with Arai et al. Perkins et al. clearly teaches away, using ceramic only as a core/insert within a case or body.

Claim 5 identifies the outlets as positioned to direct coolant streams toward an axis of the bit. Arai et al. clearly teaches away from this. The direction appears tangential (and away from rather than toward the tip).

Claim 15 identifies the cooling outlet as providing redundant coverage around the circumference of the quill so that, during a machining operation, the effects of a workpiece blocking one or more sprays of the coolant are limited. The Arai et al. configuration does not provide for workpiece blockage because the outlets are positioned and oriented for a different purpose. The Office action stated that "changing shape, dependent on work-piece parameters, involves only routine skill in the art." Office action, page 5. However, there is no indication that Arai et al. is subject to any changes in work-piece parameters. The assertion that the combination "is capable of being used in combination with the quill" is merely conclusory and still does not constitute suggestion to so use.

New claim 24 identifies aqueous and oil-based coolants not suggested by the air of Arai et al. or any proper combination of references therewith.

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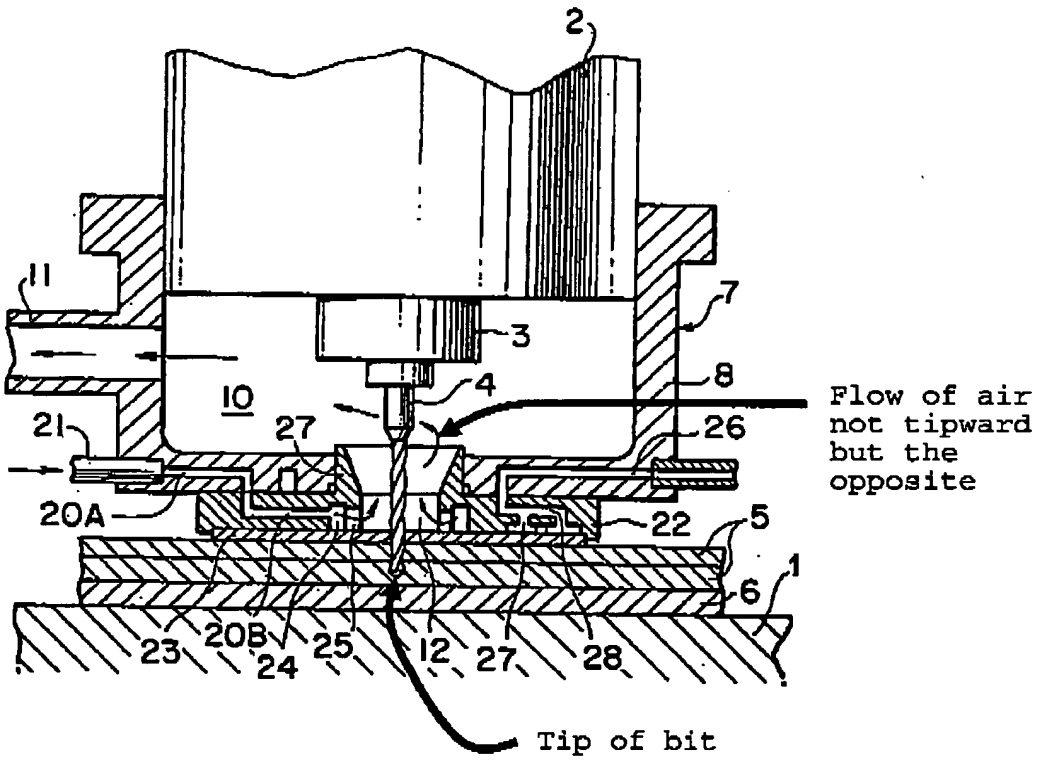
FIG. 1



Claims 13, 17, 19, and 22 were rejected under 35 U.S.C. 103(a) as unpatentable over Reitmeyer. It was asserted that "Reitmeyer meets all of the limitations of above claims, except for the number of outlets, the size and the combination with a quill, all obvious modifications..." Office action, page 5. This is merely a hindsight reconstruction of the present invention. The attempted modification of Reitmeyer, if possible, would greatly increase Reitymeyer's already high complexity and manufacturing cost. This further confirms the non-obviousness of the present invention.

Claims 1-9, 18 [believed 14], 15, and 18 were rejected under 35 U.S.C. 103(a) as unpatentable over Reitmeyer in view of Perkins et al. Applicants respectfully traverse the rejection.

There is no suggestion for the proposed combination just as there is no suggestion for the

Arai et al. and Perkins et al. combination.

Claims 1-9 and 16-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over DE '396 in view of Perkins et al. Applicants respectfully traverse the rejection.

It was merely asserted that "DE '396 in view of Perkins et al. further modified in light of combination with known tools, depending on the intended use, as indicated above meets all the limitations." Again, this is thoroughly conclusory and without support. As with the other obviousness rejections, there is a substantial degree of bootstrapping in first unsupportably proposing a combination that yields a portion of the invention and then vaguely asserting optimization for what is a non-obvious use (in lieu of a proper suggestion for the remaining elements).

Accordingly, Applicants submit that claims 1-11, 13-16, and 18-24 are in condition for allowance. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

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Date: November 10, 2005

I hereby certify that this correspondence is being faxed this 10th day of November, 2005 to the USPTO, at Fax No. 1-571-273-8300.

Antoinette Sullo